



XML Namespace Management Proposal Systems Engineering”

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Oversight Group (AOG) September 7, 2001

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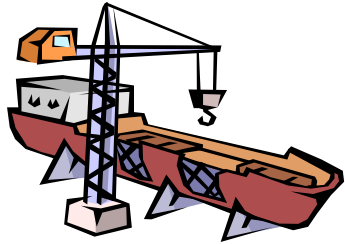
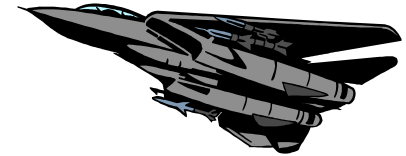
Namespace Proposal Overview

- Systems Engineering (SE) COI Description
- Why Systems Engineering Namespace Management
- Why OUSD(AT&L)IO/SE as Namespace Manager
- Example Industry Initiative: EIA-836
- Systems Engineering COI XML Namespaces
- Summary

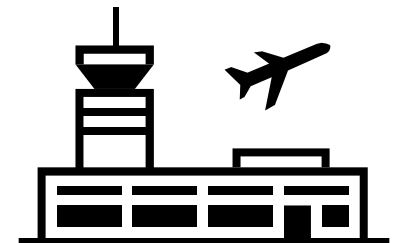
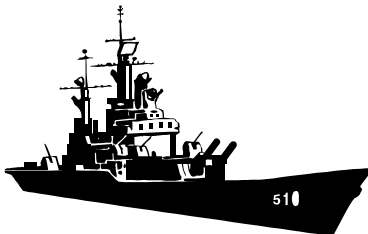
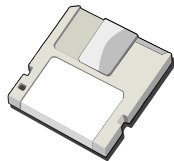
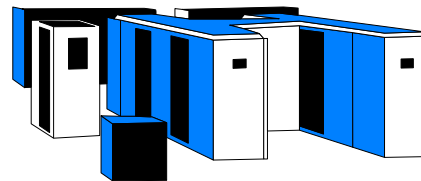
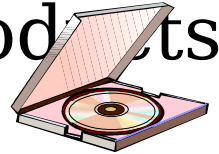


Systems Engineering COI Description

“Systems” ...



- Hardware and Software Products
- Major Weapon Systems





Systems Engineering COI Description

Systems Engineering Disciplines

- Systems Engineering
 - Software Engineering
 - Acquisition Data Management
 - Configuration Management
 - Product Data Management
 - Product Reliability
 - Product Maintainability
 - Product Quality
-

Namespace Management: OSD(AT&L)IO/SE

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Systems Engineering COI Description

- Systems Engineering COI Scope:
 - Engineering management of weapon systems and products throughout the system life cycle
 - Concept, requirements, design, prototypes, test and evaluation, manufacturing, sustainment, modification, retirement, disposal
 - Engineering data elements and business objects, a.k.a. documents, associated with systems engineering processes throughout the system life cycle
 - Engineering, product, and product configuration data: product baselines, product structure data, configuration status accounting, engineering change management, ...



Systems Engineering COI Description

- Areas that are Out of Scope:
 - Financial Management
 - Logistics Management
 - Operations Management
 - Personnel Management
 - Engineering Specialties, e.g., Electro-Optical, Human Factors, Radar, ...
- There are relationships and overlaps with other COIs
 - “Logistics Management” is a prime example
 - Overlaps must be managed



Systems Engineering COI Description

- Systems Engineering COI Stakeholders ...
 - The People ...
 - Systems engineering practitioners: design, test, and manufacturing engineers, systems analysts, CM and DM specialists, etc.
 - Information systems developers: application and database developers, MIS specialists, etc.
 - The Organizations ...
 - DoD and other government organizations
 - Major aerospace weapon system developers, e.g., Boeing, Lockheed Martin, Raytheon, ...
 - Small businesses, e.g., n-tier subcontractors
 - Tool vendors, CM, PDM, ERP, MRP systems, etc.
 - Integration solution providers: EAI, B2Bi, Portals, Web Services
 - Standards Organizations: AIA, ANSI, EIA, IEEE, PLCS, STEP, ...
 - Professional Organizations: ACDM, INCOSE, ...



Why a Systems Engineering Namespace

- Established community of interest (COI)
 - Common systems engineering vocabularies
 - Vocabularies are distinct, reasonably well defined, and bounded
- Systems engineering COI is industry driven
 - Organizations such as GEIA, ISO/STEP, and PLCS are providing systems engineering consensus standards that have applicability across vertical industries, e.g., defense, aerospace, automotive, electronics, etc.
 - Defense industry supports, and participates in the development of these standards



Why a Systems Engineering Namespace

- DoD is a stakeholder in the systems engineering COI
 - DoD systems interface to, and must interoperate with commercial systems supporting systems engineering processes.
 - DoD has a vested interest in weapon system engineering technical data management, accessibility, and persistence that transcends systems, programs, contracts, and contractors.
 - Systems engineering COI industry consensus standards for data exchange and interoperability need to be visible and accessible to DoD stakeholders
 - Opportunities to leverage industry investments



Why a Systems Engineering Namespace

- DoD partnership with industry
 - DoD is currently supporting, influencing, and endorsing selected industry initiatives within the systems engineering COI
 - The proposed “Systems Engineering Namespace” will ensure that the DoD provides a single coordinated face to industry
 - The proposed “System Engineering Namespace” establishes the appropriate mechanism for DoD to influence, and provide visibility into these industry standards and data components
 - The System engineering COI and associated standards are not represented within currently approved Namespaces



Why OSD(AT&L)IO SE as Namespace Manager

- The Systems Engineering Office has DoD-level responsibility for systems engineering data and data exchange standardization.
 - Includes both the conceptual and digital representation levels, i.e., actionable standards, as well as best practices.
 - Old world approach: Mandate MIL-STDs, e.g., 973 and 2549
 - New world approach: Participate in industry consensus standards initiatives, e.g., EIA-649, EIA-836, EIA-859, ebXML, PLCS, xCBL, etc.



Why OSD(AT&L)IO SE as Namespace Manager

- SE is the DoD systems engineering “spokesperson” within DoD and industry.
 - Co-Chair of the EIA-836 Working Group
 - Sponsoring the EIA-649 and EIA-859 Working Groups
 - Spearheading Collaborative Partnerships within DoD and industry: JECPO (DEBPO), AIA ECWG, EIA, PLCS, ISO/STEP, and others.
 - Participating in CM data element harmonization initiatives within the systems engineering community of interest.

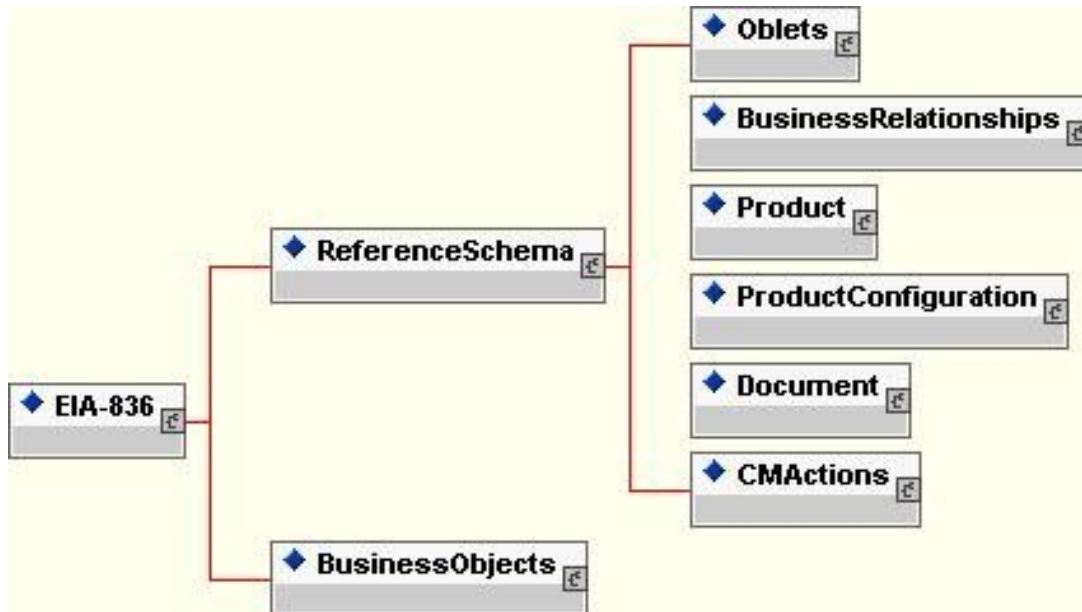
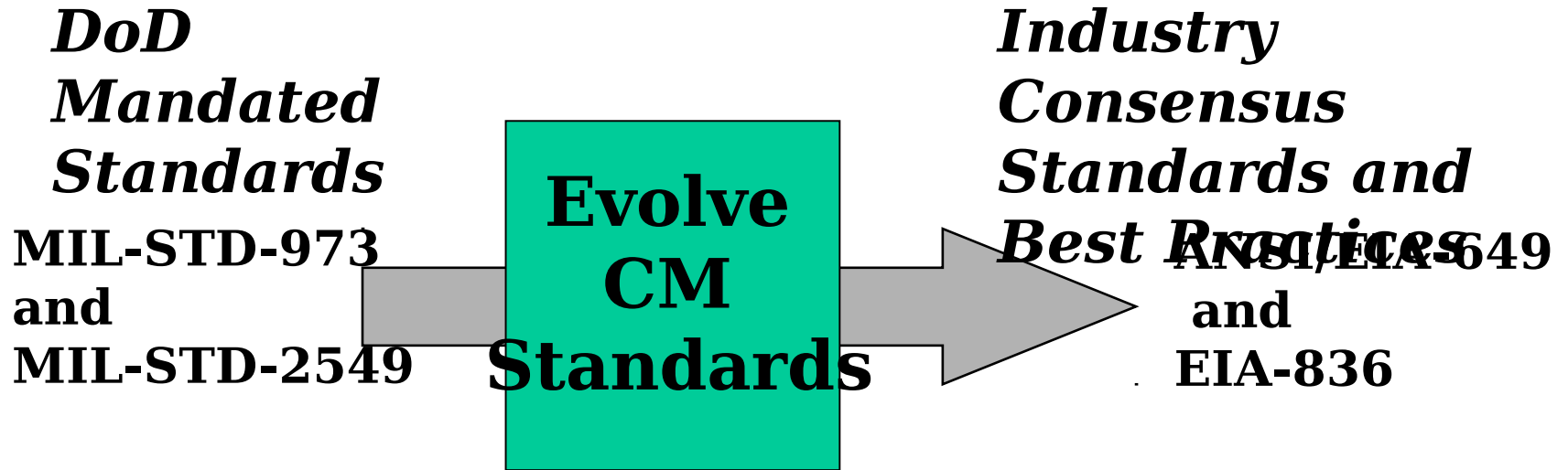


Example Industry Initiative: EIA-836

- *“Configuration Management Data Exchange and Interoperability”*
- Industry consensus standard sponsored by the Government Electronics & Information Technology Association (GEIA)
 - Initiated in January 2000
 - Scheduled for balloting in Fall 2001
- Comprehensive CM Reference Vocabulary
 - CM Data Element Dictionary and associated XML vocabulary (>800)
 - Reusable Core Components (Oblets) (~27)
 - CM Business Objects (~35)
- Broad government and industry involvement and support
 - Working Group membership reflects a broad cross section of both government and industry: OSD, Army, Air Force, Navy, FAA, Boeing, Lockheed Martin, Raytheon, Northrop Grumman, Trident Systems, TRW, and others



Example Industry Initiative: EIA-836



EIA-836 Draft Version 0.3
Information and Download

<http://www.geia.org/836>



Effective 30 September 2000 MIL-STD-973 is cancelled. A set of ten MIL-STD-973 replacement DIDs supporting configuration management have been issued. These DIDs are accessible on the Internet from the Defense Standardization Program Office (DPSO) [ASSIST-Online Web Site](#). ASSIST-Online provides documents in PDF format.

The new DIDs provide for submission in XML format. EIA-836 has developed XML templates and associated documents to facilitate generation and submission of Data Items in accordance with the DIDs, using MIL-HDBK-61 for guidance. The objective is to provide document authors with the option to create documents in XML using templates based on an XML Document Type Definition (DTD). The DTD is an XML schema specification for a data item document based on the DID and using MIL-HDBK-61 for guidance. XML documents can be created using any one of a large, and growing number of low and no cost XML authoring tools. An XSL style sheet is also being provided to allow the resulting XML documents to be viewed in an XML enabled browser in a human friendly form.

[Click here](#) for additional information on XML and the XML version of the DIDs and associated data items.

XML versions are available for the following DIDs.

- [Configuration Audit Summary Report](#)
- [Configuration Management Plan](#)
- [Configuration Status Accounting Information](#)
- [Engineering Change Proposal](#)
- [Engineering Release Record](#)
- [Interface Control Document](#)
- [Installation Completion Notification](#)
- [Notice Of Revision](#)
- [Request For Deviation](#)
- [Specification Change Notice](#)

XML versions of data
items for ten DoD CM
Data Item
Descriptions (DIDs)
<http://www.geia.org/836>



Systems Engineering COI XML Namespaces

- Proposed Namespaces
 - CM – Configuration Management
 - Provide visibility to EIA-836
 - SE – Systems Engineering
 - Systems engineering core/common components
- Candidate Namespaces
 - PDM – Product Data Management
- Others
 - TBD



Summary

- Systems engineering is a critical component of DoD weapon system and product life cycle support
- The Systems Engineering COI provides industry consensus standards for data exchange and interoperability within e-commerce environments
- The DoD XML Registry can provide visibility and accessibility to these standards
- The Systems Engineering COI is not represented by the currently approved Namespaces
- OUSD(AT&L)IO/SE is the DoD “spokesperson” for systems engineering
- There is an immediate opportunity and need for the CM and SE namespaces within the Systems Engineering COI
- Collaboration, Cooperation, and Communications with other COIs and namespace managers is essential, and has begun

Back-ups



Relationship to Other Namespaces

- System engineering processes involve the integration of data from multiple communities of interest.
 - CM business objects* can contain CM data, other systems engineering technical data, as well as cost, schedule, operational impact, and other project management data.
- Shared Common components, e.g., “Enterprise Namespace.”
- Overlapping domains of interest, e.g., Logistics

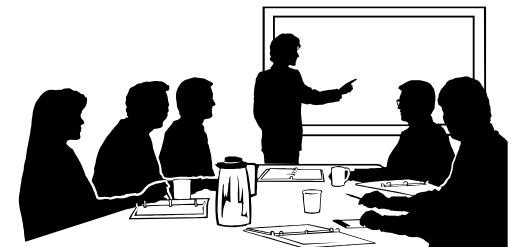
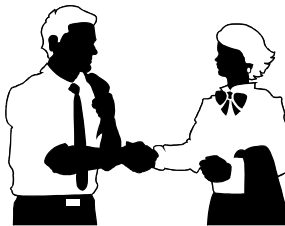
* Change Proposal, Change Directive, Change Implementation Plan, etc.



Namespace Management and Coordination



- Participating in DoD and industry organizations within the Systems Engineering COI, e.g., EIA-836, PLCS,
- Associations with industry e-commerce initiatives and organizations, e.g., ebXML, EXOSTAR, RosettaNet, xCBL, and other XML vocabulary initiatives
- OSD(AT&L)/IO Systems Engineering Steering Group (SESG) provides a coordinating body within DoD
- Namespace Managers Forum
- Ad Hoc Collaboration Forums, e.g., Systems Engineering, Logistics, other interested stakeholders





SE Namespace Management Resources

- Applying Direct Resources:
 - Ongoing OUSD(AT&L)IO/SE involvement in, and support to DoD and industry data standardization initiatives
- Leveraging Industry Resources:
 - Organizational investments, e.g., GEIA, PLCS, ...
 - Corporate investments through corporate involvement in industry standards development activities, e.g., EIA-836
- The DoD SE Namespace Manager will have increased opportunities to leverage industry investments within the Systems Engineering COI



Glossary

Term	Definition
ACDM	Association for Configuration and Data Management
AIA	Aerospace Industries Association
AIA ECWG	AIA Electronic Commerce Working Group
ANSI	American National Standards Institute
B2Bi	Business-to-Business Integration
CM	Configuration Management
EAI	Enterprise Application Integration
ebXML	XML-based electronic business framework sponsored by UN/CEFACT and OASIS
EIA	Electronic Industries Alliance
EIA-649	EIA Standard: "National Consensus Standard for Configuration Management"
EIA-836	EIA Standard: "Configuration Management Data Exchange and Interoperability"
EIA-859	EIA Standard: "National Consensus Standard for Data Management"
ERP	Enterprise Resource Planning
GEIA	Government Electronics & Information Technology Association
IEEE	Institute of Electrical & Electronic Engineers



Glossary

INCOSE	International Council on Systems Engineering
ISO	International Organization for Standardization
JECPO	Joint Electronic Commerce Program Office
MIL-STD-2549	Configuration Management Data Interface
MIL-STD-973	Configuration Management
MRP	Manufacturing Resource Planning
OASIS	Organization for the Advancement of Structured Information Standards
PDML	Product Data Markup Language (A JECPO Initiative)
PLCS	Product Life Cycle Support (ISO/STEP-Related Initiative)
PDM	Product Data Management
STEP	STandard for the Exchange of Product model data (ISO 10303)
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
xCBL	XML Common Business Library
XML	eXtensible Markup Language